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ABSTRACT

This paper presents an introduction to basic concepts of educational research for preschool, elementary, and secondary teachers at the Escuela Internacional Sampedrana (EIS) in Honduras who expressed interest in pursuing graduate education in the United States. EIS is a private bilingual (Spanish-English) K-12 school in Honduras. In the first part of the paper, teachers are introduced to the characteristics of qualitative and quantitative research methods, and later to a blending of the two methods into an approach known as "disciplined inquiry." The second part of the paper presents an active introduction (including sample worksheets) to reviewing research and synthesizing findings from pertinent research studies into an integrative overview. Specific techniques for constructing such a literature review are noted, including the basic rules of the Publication Manual of the American Psychological Association (APA). Three appendixes provide a profile of EIS, the EIS professional development seminar series schedule, and a brief guide for APA writing style. (Contains 11 references.) (MDM)

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AN INTRODUCTION TO EDUCATIONAL RESEARCH:

DISCIPLINED INQUIRY AND

LITERATURE REVIEWS

by

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Evans Consulting Group

Paper Prepared For The Escuela Internacional Sampedrana
Professional Development Seminar Series

San Pedro Sula
Honduras

March 1998

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INTRODUCTION

The purpose of this document is to present material developed as an introduction to basic concepts of educational research for preschool, elementary, and secondary international teachers at the Escuela Internacional Sampedrana (E.I.S.), Honduras (Appendix A). These teachers had expressed interest in pursuing graduate degrees in United States universities following the expiration of their contracts; hence, this attempt to orient them to new settings that may lie ahead. The material that follows were prepared for presentation as one seminar in E.I.S.'s 1997-1998 Professional Development Seminar Series (Appendix B).

In Part A of this document, teachers are first introduced to the characteristics of qualitative and quantitative research methods, and later to a blending of these two research methods into an approach which Shulman (1988) called "disciplined inquiry". The general purpose of such a discussion is to *philosophically* introduce teachers to research methodology expected in university settings; a more specific purpose is to encourage individuals to read the updated edition of Jaeger's 1988 book, Complementary Methods For Research In Education. A final motive is to develop an initial appreciation among participants for the complexity of various conceptual debates (or paradoxes) likely to be encountered by these future consumers of educational research.

The second section of this document, Part B, presents an *active* introduction to reviewing research and synthesizing findings from pertinent research studies into an integrative overview. The integration piece should adhere to style specifications described in the Publication Manual of the American Psychological Association, 4th edition (Appendix C).

Resources available to the teachers for their review of research included E.R.I.C. Digests, professional association material, library journals, and material downloaded from the internet. In addition to learning research review and synthesis skills for future use, this activity was also designed to enhance teachers' notion of a "reflective practitioner" (Schon, 1983) and to encourage "action research" (Noffke, 1997) in their own classrooms prior to the conclusion of the present academic year.

PART A

EDUCATIONAL RESEARCH AS DISCIPLINED INQUIRY

Thomas J. Evans, Ed.D.

PART A of this document is comprised of a technical paper titled, *Disciplined Inquiry: Blending Quantitative And Qualitative Research Methods*. In this paper, qualitative and quantitative research methods are compared and contrasted by means of specific examples from published research which represent one or the other methodological approach. Following this discussion, the paper concludes with a call to blend the practice of each distinct research method into an approach Shulman (1988) termed "disciplined inquiry". The virtues of using such a research approach are highlighted as well.

Following this paper presentation, a group discussion is beneficial which further casts attention upon philosophical underpinnings of other significant ongoing conceptual debates in education. Closure for such debates remains elusive due, in part, to the nature of human cognition itself which constantly shifts focus back-and-forth from generalized wholes to specific parts (Bruer, 1997). Consequently, overarching general theories that, ironically, unify broad areas of study can not provide definitive answers to resolve conceptual debates that have arisen since opposing positions are grounded at different particular cognitive levels of analyses.

Several examples follow to clarify this last point. First, in the area of *educational measurement*, the two concepts reliability and validity must be taken into account prior to actual

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testing. This is essential since the conceptual relationship between reliability and validity is such that more of one decreases the presence of the other; therefore, a proper balance must be reflected in testing procedures so that meaningful conclusions may be drawn from data collected (Mehrens, 1987). Furthermore, this reliability/validity conundrum underlies debates on the use of *assessment strategies* particularly when one is asked to select between holistic/alternative assessments (validity concept) and sub-skill/standardized assessments (reliability concept).

Moreover, teachers are increasingly required to balance the relative merits of disparate *instructional strategies*, for example, whole language instruction versus a phonics approach (Routman, 1997; Smith, 1992). Likewise in the area of *cognitive psychology*, debates abound concerning the center of student learning (Anderson, Reder, and Simon, 1997), and pit a constructivist approach (situated learning, socially created) against an individualistic approach (cognitive learning, internally centered).

In summary, the intent of a follow up group discussion focused on these conceptual inconsistencies is to reinforce the pragmatic, eclectic recommendation initially made that supported blending qualitative and quantitative research methods. In other words, the best approach in addressing conceptual discrepancies may be one that promotes individual mastery of contradictory concepts on both sides of a debate. Lastly, the previous examples may hopefully impart to participants that the nature of education as a body of knowledge is created through the ongoing active interplay of theory and practice/ research and application. Participants may then begin to sense that, in essence, the study and work of educators (teachers and researchers alike) is more craft-like, defying strict descriptions as either artistic or scientific.

DISCIPLINED INQUIRY: BLENDING QUANTITATIVE AND QUALITATIVE RESEARCH PRACTICES

A hotly contested debate continues among educational researchers concerning the merits of quantitative versus qualitative methodology. Narrowly drawn arguments risk leading the neophyte researcher astray when one methodological orientation is proposed to the exclusion of the other. An alternative approach would be to practice what Shulman (1988) termed "disciplined inquiry". As Cronbach and Suppes (1969) explained earlier:

> ... inquiry does not necessarily follow well established, formal procedures. Some of the most excellent inquiry is free-ranging and speculative in its initial stages, trying what might seem to be bizarre combinations of ideas and procedures, or restlessly casting about for ideas (cited in Shulman, 1988, p. 5).

Disciplined inquiry combines or *blends* quantitative and qualitative methodology instead of fostering a competition of one method over the other for exclusive use. Wielding the resources to practice alternate forms of research enables a researcher to answer virtually any research question. As Shulman (1988) instructed: "We must first understand our problem, and decide what questions we are asking, then select the mode of disciplined inquiry most appropriate to those questions" (p. 15).

In subsequent sections of this paper, a comparison will be made between quantitative and qualitative research methods which are typically represented as opposite extremes of a research methodological continuum. After distinguishing one method from the other, the inherent benefits to practicing disciplined inquiry will be presented.

A Contrast Of Methods

A qualitative research method such as a case study and a quantitative research method, for example, an experimental design exhibit distinct, inherent characteristics. These characteristics define: (a) the types of questions they may answer; (b) the knowledge they may produce; (c) the generalizability of their findings; and (d) the extent to which the researcher intervenes in the phenomena studied. In order to underscore the enhanced potential benefits in using a disciplined inquiry approach, each characteristic stated above will be highlighted for a representative qualitative research method -- a *case study* (Heath, 1982) -- and for a quantitative research method -- an *experimental design* (Clark, Gage, Marx, Peterson, Stayrook, and Winne, 1979).

The Case Study As Qualitative Research

Using ethnographic techniques to investigate educational research questions continues to grow in acceptance and popularity among educational researchers. In 1982, Heath aptly displayed the virtues of this qualitative research technique when she reported on the differential use of questioning between teachers and parents in a working-class community of African-American residents in a Southeastern city in the United States. Heath immersed herself in her subjects' community and institutions. She regarded herself as "colleague, co-author, aide, and associate to many of the classroom teachers, [having] access to not only their classrooms but also their homes and their activities in the public domain" (Heath, 1982, p. 106). She determined that functional relationships should be assessed, and therefore, enlisted large numbers of individuals to

collect and openly share data over the five-year span of the study.

Heath (1982) went about analyzing the relations of interest by deploying a number of research strategies including parent and teacher data collection, interviews, personal observation, and participant-observation and interaction. Due to the extent of Heath's interaction with her sample population a "two-way path" (p. 104) of communication was established between the school and the community regarding the application of improvements to the classroom. Heath's research agenda was initially comprised of a broad aim "to indicate how ethnographic data on verbal strategies in community and home settings can be useful for comparisons in studies of the functions of language in the classroom" (p. 105). Heath's later aim focused considerably more on activities serving to facilitate the work of change agents willing to participate in the two-way path model. Specifically, "intervention was therefore not only to change Trackton students, but also to provide an opportunity for alterations in teachers' behaviors and knowledge" (p. 124).

As a result of the various strategies applied, the Trackton community obtained valuable information which was subsequently operationalized in the relations between school and community. Over the course of this study, Heath had progressed from reporting descriptions of language socialization leading to correlational relationships to specific application of knowledge derived from her observations. The Trackton findings were not generalized to any other *populations*, but the natural settings from which they were obtained permit wide generalizability to other similar *settings*.

In summary, Heath's use of the case study method displayed a number of characteristics that are typically associated with qualitative research techniques. The study focused on broad research questions which were developed over time, involved the researcher intimately with the

subjects, produced correlational inferences, and resulted in findings of great generalizable potential to other similar settings.

The Experimental Design As Quantitative Research

An example of an experimental design in education was offered by Clark et al. (1979) in which "Eight treatments factorially varied two levels of teacher structuring, soliciting, and reacting" (p. 534) in a full factorial design. The three teacher recitation behaviors of structuring, soliciting, and reacting were systematically manipulated through scripted texts and compared for any significant effects on student achievement. The students were not randomly selected, instead, students and teachers were randomly assigned to the treatment groups. The extreme manipulation of the teachers' behavior established a high degree of internal validity. There was high precision because trained teachers could be interchanged without introducing additional error. Since there existed high internal consistency and precision, the researchers concluded that "he best treatment for bringing about achievement was high-structuring low-soliciting high-reacting (HLH) variation" (p. 550). However, an unexpected finding also revealed was that "The four teachers had different effects despite rigorous control of teacher behavior and subject matter" (p. 534). Between-teachers variation had not completely been eliminated, thus the suggestion that "even in experiments, individual differences among teachers, perhaps in style and temperamental factors, should be measured" (p. 550). The study's extreme structure enhanced claims for internal validity, while conversely, external validity was reduced as a result of the setting's artificiality. That is, the study was so well designed and implemented that the genuineness of classroom

culture was, on the whole, absent as a result of the rigidity. Generalizability depends on how well the teachers, students, and experimental situation represent the typical classroom; in this case, the experimental situation no longer represented a typical sixth grade classroom.

Evidence of the attempt to emulate the traditional scientific method abound throughout the Clark et al. (1979) study. The experimenters explicitly stated from the outset that their goal was to determine "the causal effects of teacher behavior in classroom recitations" (p. 534). Hence, the attempt to experimentally "identify teaching variables causing improved student achievement" (p. 534). Nothing less than the distilled essence of effective teaching was sought. To protect against any possible contamination of the results, the researchers consciously attempted to prevent their own unintentional influences from impacting on the phenomena studied.

In summary, the full factorial design reported in Clark et al. (1979) exemplified the quantitative educational research method. The study was designed to seek answers to specific questions, to yield information about causal effects, to be as error free (i.e. control variation) as possible to establish great internal validity, and to exclude undesired experimenter intervention.

Disciplined Inquiry: An Alternative Approach

From the foregoing discussion it should be apparent that qualitative research methods differ operationally in practice from quantitative research methods. An awareness of this distinction, however, need not prompt an either or selection response on the part of the neophyte educational researcher toward selecting one method to the exclusion of the other. A valuable

point to keep in mind is that "alternative methods not only approach the doing or research differently, but, by and large, ask different questions, and hence, generate quite different answers" (Shulman, 1988, p. 9).

The adoption of a *disciplined inquiry* approach may present a middle ground in this heretofore research methodological dichotomy without sacrificing the virtues of either orientation. This resolution arises from the recognition that social phenomena occur at levels (both general and specific) accessible from multiple perspectives. Descriptive, correlational, and experimental perspectives of analysis are all helpful in determining the *complete* nature of phenomena studied. Greater conceptual understanding is achieved when a combination of these approaches is used than when one orientation is chosen to the exclusion of the others. This implies that strict adherents of quantitative or qualitative research methods should consider broadening their research agenda by effectively varying their research perspectives.

Equipping a researcher with a multiperspective approach that employs different techniques empowers him or her to ask, pursue, and answer questions heretofore unattempted. For example, qualitative methods are limited when causal explanations or extensive internal validity of results are desired. By contrast, quantitative methods are limited to the degree that the artificially created settings of the social phenomena appear too contrived to aid in practical generealizability to other settings.

Since explanation and understanding are enhanced with more knowledge not less, it behooves the serious educational researcher to diversify methodologically. As Shulman (1988) suggested, "The best research programs will reflect intelligent deployment of a diversity of research methods applied to their appropriate research questions" (p. 16).

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PART B

CONDUCTING A LITERATURE REVIEW AND INTEGRATIVE SYNTHESIS

Thomas J. Evans, Ed.D.

In Part B of this document, a structured activity is described for which participating teachers are asked to identify a topic of interest, review related research studies, and synthesize the findings into an integrative overview. Participants are asked to provide information from each study in a format that includes the: (a) purpose of the study, (b) methodology used, (c) results reported, and (d) inferences concerning the significance of the results. Participants are requested to complete summaries of ten research studies, then synthesize the findings into an integrative overview written to specifications of the American Psychological Association, 4th edition, including a list of references (Appendix C).

Since the Escuela Internacional Sampedrana (E.I.S.) is located Honduras, providing a sufficient resource base for the review of research presented a challenge. However, the campus library contains regular subscriptions to periodicals such a *Educational Leadership*, *N.A.S.S.P. Bulletin*, *The Education Digest*, and *Teacher Magazine*. (While these periodicals tend to offer commentaries on and interpretations of research rather than original research reports, they serve as good starting points from which individuals may derive interests in particular topics and begin

to formulate directions for further review). Viable resources of research available to review included reference material that: (a) teachers pooled which they had brought with them in preparation for their first year, (b) the author downloaded from the internet (for example, E.R.I.C. Digests), and (c) teachers and the author received in the mail from various professional associations. Finally, specific sources of original research available for teachers to review included published material sent by The American Educational Research Association (A.E.R.A.) such as *Review of Research in Education*, *American Educational Research Journal*, and *Educational Researcher*; *The Harvard Educational Review* was also available.

LITERATURE SEARCH AND REVIEW EXERCISE FOR INTERNATIONAL TEACHERS ABROAD PURSUING STATESIDE MASTERS DEGREES

The activity described herein represents the author's experience in completing this exercise for the first time as a graduate student in a course at The University of Alabama titled, Life Span Development. In the example case to follow, the topic of interest selected and researched was the research productivity of university professors over time. Therefore, research was reviewed, summarized, and synthesized into an integrative overview which examined the relationship between a professor's age and level of research productivity. Quantitative and qualitative research studies were included among the articles reviewed.

The next four sections of this paper present steps that outline the development of a finished product. The specific four sections which follow are: (1) Worksheet Outline For

Reviewing Research Literature; (2) Sample Worksheets For 10 Articles On: University Faculty Members' Age And Research Productivity; (3) Sample Integration For The 10 Articles Reviewed; and (4) Sample Reference Section For The Integrated Review.

WORKSHEET OUTLINE FOR REVIEWING

RESEARCH LITERATURE

Teachers were requested to structure their reviews of research literature consistent with the categories outlined below. The next ten pages of this paper offer samples of completed worksheets.

Bibliographic Citation: Author(s), Publication Date, Title, Source, Pages or Publishing Company.

Purpose:

Method:

Results:

Significance of Results:

SAMPLES WORKSHEETS FOR TEN ARTICLES: UNIVERSITY FACULTY MEMBERS' AGE AND RESEARCH PRODUCTIVITY

The ten sample reviews of literature illustrate researchers' purposes, varying methodology, and hence, unique results. The significance of each researcher's results is also included.

ARTICLE REVIEW: NUMBER ONE OF TEN

Baldwin, R. G. and Blackburn, R. T. (1981). The academic career as a developmental process. Journal of Higher Education, 52, 598-614.

Purpose: The purpose of this study was to investigate college faculty career stages in light of recent work in developmental psychology.

Method: A sample of 106 male college faculty members was drawn from twelve liberal arts colleges in the Midwest. The faculty provided career information through an interview and questionnaire which focused on change among others topics. The data was compared for five groups: assistant professors in their first three years and those with more experience, associate professors, and full professors more than five years from retirement and those within five years of retirement.

Results: Over time, some faculty characteristics remain stable, others evolve, and still others fluctuate predictably. Critical events impact on a professor's career development. Scholarship steadily declined across all groups with time except for associate professors who stated being more comfortable with research and for those near retirement who expressed pleasure with the opportunities for research.

Significance of Results:

More attention should be given to each phase of an academic career generally, and treat every professor as a unique individual specifically. Institutions need to remain flexible in encouraging professional growth. Professional production can be viewed more accurately as a nonlinear function rather than a straight line. "Faculty who plan career development strategy are more likely to maintain steady professional growth and enjoy the satisfaction of regular career renewal".

ARTICLE REVIEW: NUMBER TWO OF TEN

Bayer, A. B. and Dutton, J. E. (1977). Career age and research-professional activities of academic scientists. Journal of Higher Education, 48, 259-282.

Purpose: Six alternative theoretical models were used to determine the relationship between age and activity variables for a national sample of doctorate faculty in seven disciplines.

Method: A national sample of 5,079 Ph.D. faculty were surveyed and their responses analyzed using six mathematical nonlinear transformation models. Career age was selected as the primary independent variable, which was regressed against 8 research/professional variables, including "total number of published articles during the scientists' professional lifetime". A best fit graph was determined for each independent variable by discipline and for all fields combined.

Results: Regarding the total number of lifetime article publications, "for the total group, and four of the seven fields, the 'spurt' function provides a best fit to the data".

Significance of Results:

No particular model fit for each dependent variable for all disciplines. Possible explanations include market effects, cohort effects, selective attrition, and/or "vintage effects". All told, career age is a poor predictor of research-professional activity. No conclusions can be made for faculty in one discipline based on responses from another. "In no case is the amount of variance explained in any criterion variable sufficient to warrant any 'standard' educational policy applicable to all members of an age cohort".

ARTICLE REVIEW: NUMBER THREE OF TEN

Blackburn, R. T., Behymer, C. E., and Hall, D. E. (1978). Research note: Correlates of faculty publications. Sociology of Education, 51, 132-141.

Purpose: This study was undertaken to determine the correlates of scholarly productivity.

Method: A questionnaire was administered nationally from which a subset of 7,484 faculty were drawn. Three dependent variables (including total career article production) and 24 independent variables were examined. An analysis of variance and regression procedure was used to ascertain the correlates of scholarly productivity among university faculty.

Results: A strong relationship was found between productivity and both school type and institutional prestige. An interest in research decreased with advancing age, but the decrease was relative for low and medium producers. Rank emerged as the best predictor, while age was eliminated as a predictor because it was strongly correlated with rank. Productivity increased steadily with rank, represented by a saddle-shaped curve for age versus productivity.

Significance of Results:

Faculty who are motivated, successful, and interested in research at an early age continue to publish throughout their careers, while those who publish little early in their careers, continue to publish little later. For the former group, few mistakes would be made in granting tenure. Future research should focus on why a drop in productivity occurs for the high producers. It was suggested that it could be a time of critical life adjustment, a drying-up of the dissertation resource bank, or the result of lessened pressure due to achieved rank. Administrators, though, should keep in mind that a drop in productivity is not indicative of the end of a productive career, but rather a time for renewal and stimulation of some kind.

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ARTICLE REVIEW: NUMBER FOUR OF TEN

Clemente, F. and Sturgis, R. B. (1974). Quality of department of doctoral training and research productivity. Sociology of Education, 47, 287-299.

Purpose: This study examined the relationship between the quality of department of professional training and research productivity.

Method: The 2,467 members of the American Sociological Association who received the Ph.D. in sociology from 1950 to 1970 were sampled. Research productivity was operationalized as the number of publications in a specific set of sociological journals. Age at Ph.D. and years between B. A. and Ph.D. were entered into the regression equation as controls since they had been identified in prior research as impacting on productivity.

Results: Age at Ph.D. and years between degrees were correlated the greatest with total publications, but negatively so and of moderate magnitude.

Significance of Results:

One's age at Ph.D. and years between degrees shows an inverse relationship with productivity. This may indicate that "late starters" have a difficult time catching up to their earlier starting colleagues in terms of productivity. Also a measure of the quality of research output would be more helpful in future research.

ARTICLE REVIEW: NUMBER FIVE OF TEN

Dickson, V. A. (1983). The determinants of publication rates of faculty members at a Canadian university. The Canadian Journal of Higher Education, 13, 41-49.

Purpose: This study examined the determinants of inter-individual differences in publication rates for faculty in a Canadian university.

Method: A sample of 245 faculty members listed in the Faculty Publications List, University of New Brunswick were assessed for their productivity by totaling their number of articles authored or co-authored, the number of books edited or co-edited, and the number of books written. A ordinary least squares regression method was used that predicted publications by academic rank, degree qualifications, academic discipline, and number of years since receipt of first degree (YSFD).

Results: This study showed that publication rises with rank. The hypothesis is that academic ranks reflect research ability. Although higher academic ranks are more productive, seniority tended to erode productivity, especially for the higher ranks. "On average, young full professors are more productive than full professors of mean YSFD experience, and that older persons in all ranks produce publication levels insignificantly differ from zero".

Significance of Results:

A possible explanation why YSFD correlates negatively with publication rate may be due to the exhaustion or obsolescence of ideas and methodologies developed early in one's career. This raises the issue of how much research a university can expect for a faculty member in mid-career, and what means can be taken to stimulate future research from the individual. Also, future attempts aimed at assessing research productivity should develop a measure of quality versus quantity research.

ARTICLE REVIEW: NUMBER SIX OF TEN

Entrekin, L.V. and Everett, J.E. (1981). Age, and Midcareer crisis: An empirical study of academics. Journal of Vocational Behavior, 19, 84-97.

Purpose: This study was undertaken to develop an empirically based mid-career crisis period for the academic staff sampled which is consistent with the general literature on mid-career crisis/transition.

Method: A questionnaire administered to 1,294 faculty members at four Canadian universities was designed to measure their attitudes on various aspects of their work environment, including publication.

Results: The only factor significantly dependent upon age was cosmopolitanism, which was composed of the variables mobility, competitiveness, and geographic isolation. The only attitudinal variable significantly dependent upon age was teaching methods. A career stage model of academic staff was constructed and on the basis of values obtained for cosmopolitanism and teaching method, which were subsequently divided into career stages. A characterization of the stages was given using Erickson's theory of life stages.

Significance of Results:

This study demonstrated a methodology for investigating the career dynamics of academic staff. Empirical support for the authors generalized career stage model was obtained. The stages proposed were consistent with a nonlinear design often associated with research specific to age versus productivity studies. Perhaps the authors model will prove to be a helpful guide in later age/productivity research.

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ARTICLE REVIEW: NUMBER SEVEN OF TEN

Lawrence, J. H. and Blackburn, R. T. (1985). Faculty careers: Maturation, demographic, and historical effects. Research in Higher Education, 22, 135-154.

Purpose: In this study, university faculty were interviewed and had their vitae collected in order to examine the results "from the perspectives of maturation (age), demographic (cohort), and historical effects".

Method: Sixty-five University of Michigan arts and science faculty were interviewed regarding career related information and had their vitae analyzed with regard to productivity among other items of interest. An exploration for the data was given according to an aging, cohort, and historical perspective -- whichever seemed the most appropriate.

Results: The aging scheme appeared to explain best faculty comments related to promotion criteria and ideals. In particular, a lag in publication seemed to follow one's appointment to associate professor. This within cohort variance suggested that an aging effect may be at work, especially as these associate professors seek a balance in their roles having been freed from strong external pressures. Scholarly production was explained by a cohort framework. For the three cohort groups productivity was constant over time, but the youngest group consistently outproduced the two older groups. The difference was accounted for by their greater involvement in research during their graduate studies.

Significance of Results:

The cohort or historical scheme or a combination of the two seemed to explain the results better than the aging scheme. This points to the need for more sophisticated ways of analyzing between "cause-effect relationships between individual and institutional variables and career patterns". The aging scheme emphasized the importance of "early career socialization experiences". Finally, administrators need to distinguish between resistance to change due to aging as opposed to initiatives that run counter to the long held core values of a particular cohort.

ARTICLE REVIEW: NUMBER EIGHT OF TEN

Orpen, C. (1982). Tenure and academic productivity: Another look. Improving College and University Teaching, 30, 60-62.

Purpose: "The relation between tenure and productivity is examined both by comparing the productivity of comparable groups of tenured and nontenured subjects and by comparing the productivity of the same subjects before and after gaining tenure".

Method: Thirty-six tenured and nontenured subjects were drawn from a variety of disciplines at four multiversities such that pairing were made regarding age, seniority, discipline area, and previous degree.

Results: "There were no significant differences between the groups in terms of the variables of age, seniority, discipline, or previous degree".

Significance of Results:

There was no significant difference found for the particular variable of my interest (age). Differential production rates do exist among faculty, but this study has ruled out age, seniority, discipline, previous degree, and finally tenure as possible predictors. It was suggested that tenure fails to affect production rates because productivity may depend on how interesting and challenging a job is viewed, not how secure it is; possibly a zero net effect is achieved for stimulated and disinterested faculty following tenure; or possibly the quality of output is raised, while the quantity diminishes.

ARTICLE REVIEW: NUMBER NINE OF TEN

Over, R. (1983). Does research productivity decline with age? Higher Education, 11, 511-520

Purpose: This author studied whether research productivity among British psychology faculty declined as a result of aging.

Method: Psychologists listed in 1970 or 1980 as holding full-time appointment at lecturer level or above in the psychology department of a British university had their publication rate determined by summing their Psychological Abstracts entries in 1968-70 and 1978-80. Four age groups (26-35, 36-45, 46-55, and 56-65 years) were established and their means were compared.

Results: The psychologists over 45 years old published significantly less than those under 45 years old. A multiple regression analysis predicted publication rate in 1978-80 from age in 1980, sex, academic rank in 1980, publication rate in 1968-70, and the research standing of the university. It displayed 23.8% of the variance explained in terms of the past productivity of individuals and another 6.6% explained by university affiliation.

Significance of Results:

A person's prior rate of publication was found to be a better predictor of productivity than age was. It was suggested that publication rates could have declined for those over 45 due to computing commitments, a lessened motivation to publish, decreased access to resources, or obsolete knowledge and skills. This research suggests that to maintain a university's valuable human resources, a decision to tenure or replace a faculty member may possess stronger rational if based on one's past publication rate than age.

ARTICLE REVIEW: NUMBER TEN OF TEN

Wanner, R. A., Lewis, L. S., and Gregorio, D. I. (1981). Research productivity in academia: A comparative study of the sciences, social sciences and humanities. Sociology of Education, 238-253.

Purpose: This study was designed to test "a model incorporating both academic and nonacademic factors as determinants of productivity..."

Method: A sample of 17,399 faculty from 78 universities, 181 four-year colleges, and 42 junior or community colleges was collected. The dependent variable was self-reported number of articles and books published by the faculty members. Age was excluded from the analysis in favor of the determinants, years of experience and time to Ph.D., which together account for nearly all the variance in age, thereby eliminating problems of collinearity.

Results: The determinants years of experience and time to Ph.D. were weak predictors of article production and even weaker predictors of book production. Cross discipline comparisons were difficult to make due to a differential rate in production of articles and books.

Significance of Results:

The results indicated future research that should be made. An analysis is needed of article production which takes into account the difficulty of getting one printed depending on one's discipline. An investigation should be made of ways in which the institutional structure influences the rate of production by individuals.

SAMPLE INTEGRATION SECTION FOR THE TEN ARTICLES REVIEWED

INTRODUCTION

This section presents an analysis of the research reviewed and develops a synthesis of significant implications draw from the ten articles reviewed. The integration of the studies reviewed is presented in three sections: (1) career development; (2) factors other than age; and (3) implications.

Career Development

Several authors noted that among university faculty a nonlinear relationship exists between age and productivity primarily due to a theorized mid-career crisis. Bayer (1977) suggested a "spurt" function in which production rises with age, drops during the mid-career period, and rises once more as one nears retirement. Blackburn (1978) observed a saddle-shaped curve which related age to productivity and was characterized by a decrease in production for the mid-career individuals. Baldwin (1981) reported peaks in scholarly activities for associate professors and those within five years of retirement which disrupt an otherwise steady decline in research activity.

Further support for a drop in production due to a mid-career crisis was provided by several other authors. Over (1982) found that faculty over forty-five years of age publish less

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than those under forty-five years for four distinct cohort groups examined. Lawrence (1985) stated that a lag in production generally occurs after one is appointed to associate professor, which he stated, is a mid-career stage for an academician. Baldwin (1981) described professorial characteristics over time as remaining stable, evolving, or fluctuating predictably. A characteristic from the latter group termed "reassessment experiences" included mid-career crises. Lastly, Entriken (1981) used cosmopolitanism variables and a preferred teaching method variable to construct a career stage model of academic staff. In this model, a crisis stage is proposed called "reaching out" that occurs for the 45-49 year olds who may feel that this stage is "the last practical or logical point to alter one's career" (p. 92). Erickson's life span theory was used to interpret the reaching out stage of the model.

Predictors Other Than Age

Orphan (1982) and Bayer (1977) concluded that age was a relatively poor predictor of academic productivity. Other researchers focused attention to alternate factors to explain differential production rates among faculty. For example, Over (1982) concluded that the *past productivity level* of the individual was a better predictor of future production than age. Lawrence (1985) found younger cohort groups to consistently outproduce older groups; he attributed the difference to a *greater involvement in research* during graduate studies for the younger cohort group. Blackburn (1978) reported *rank* as the best predictor possibly because of an accumulated advantage of resources, an acquired facility at getting work published, and/or because promotion is based on one's publishing record (at prestigious schools), so more

productive individuals would be found occupying the higher ranks. In this same study, Blackburn discovered that "where one works predicts a significant portion of the variance"; that is, "over the full career what is most important is the *work environment* [italics added]" (p. 140). Additionally, Dickson (1983) demonstrated that publication rate rises with rank, which was interpreted to mean that academic ranks reflect *one's research ability*.

Bayer (1977) mentioned several other factors that may account for a decrease in faculty production. *Market* or *historical forces* may influence production when a glut of available faculty exists for a limited number of positions such that those employed age together without the benefit of new stimulating colleagues. Additionally, cohorts may share the same *early professional socialization* and have developed an outlook towards their professorial roles that does not emphasize the activity of research as much as the institution does. Also, "*selective attrition*" influences productivity when prior successful professors are promoted to administrative positions which place competing demands on their time.

Blackburn (1978) summarized the variables that operate on the personal level which explain differing production levels. He commented that:

> Those who will be productive over their full careers are individuals who start early, receive their degree when young, and take on the habit of regular output. These individuals are not affected by status changes (promotion, tenure) but rather continue to widen the productivity gap between themselves and their less productive colleagues as time passes. They are discernible in their careers (p. 140).

IMPLICATIONS

There are several implications for university administrators concerned with the productivity rate of university faculty as a function of their career development. First, an understanding of the career development of university faculty should be viewed in individual terms. Their careers are characterized by stable, evolving, and fluctuating variables, and are affected by significant career events (e.g., sabbaticals, workshops, research projects, and individual grants). By adopting a developmental scheme for a faculty career, the individual professor could be assigned duties relevant to his or her particular stage. For example, since the first few years of instruction and research place great demands on young faculty members, additional challenges, such as committee work, could be delegated to senior faculty who may be experiencing a mid-career production let down. The younger professors might be better utilized in teaching upper level courses where their recent training would serve an upgrading function. Likewise, the senior faculty may have acquired certain skills or experience that would identify them as the most capable at directing committees or taking on administrative tasks. Though mid-career professors may be in need of professional stimulation, they are likely not at the end of their productive careers. In fact, if a certain individual has had a successful past publishing record, tenure could be granted with greater confidence than for less distinguished individuals earlier in their careers. Finally, the individual professor who plans his or her career aware of the "typical" path will more likely enjoy continual professional growth and renewal.

A researcher making investigations into the variables affecting faculty productivity would benefit by noting the recurrent suggestions in the research literature. For example, there is an

increasing interest in *distinguishing quality research from quantity* research. The greater volume of one person's work does not in itself necessarily make it more valuable than another person's work. Being able to make the distinction of quality research might well show older faculty to be as productive as younger faculty. Assessing quality production would also aid in *standardizing cross disciplinary comparisons* where publishing rates are effected by their customary form (e.g., books versus articles) and the higher acceptance rates of journals in particular disciplines. Researchers might also benefit by emphasizing historical and cohort factors rather than age as a predictor of faculty production. Age versus productivity studies have helped in explaining such phenomena as mid-career transitions, but otherwise age has not been found to be a good predictor of faculty productivity. Lastly, with the general acceptance that a mid-career crisis is inherent to a faculty career, researchers should continue to search for a *best fit nonlinear model* to explain the reasons for observed differential production rates among faculty.

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SAMPLE REFERENCE SECTION FOR THE INTEGRATED REVIEW

The format of the authors/articles listed below is consistent with the Publication Manual of the American Psychological Association, 4th Edition, 1994. (More details of this writing style may be found in Appendix C).

Baldwin, R. G. & Blackburn, R. T. (1981). The academic career as a developmental process. Journal of Higher Education, 52, 598-614.

Bayer, A. B. & Dutton, J. E. (1977). Career age and research-professional activities of academic scientists. Journal of Higher Education, 48, 259-282.

Blackburn, R. T., Behymer, C. E., & Hall, D. E. (1978). Research note: Correlates of faculty publications. Sociology of Education, 51, 132-141.

Clemente, F. & Sturgis, R. B. (1974). Quality of department of doctoral training and research productivity. Sociology of Education, 47, 287-299.

Dickson, V. A. (1983). The determinants of publication rates of faculty members at a Canadian university. The Canadian Journal of Higher Education, 13, 41-49.

Entrekin, L.V. & Everett, J.E. (1981). Age, and midcareer crisis: An empirical study of academics. Journal of Vocational Behavior, 19, 84-97.

Lawrence, J. H. & Blackburn, R. T. (1985). Faculty careers: Maturation, demographic, and historical effects. Research in Higher Education, 22, 135-154.

Orpen, C. (1982). Tenure and academic productivity: Another look. Improving College and University Teaching, 30, 60-62.

Over, R. (1983). Does research productivity decline with age? Higher Education, 11, 511-520.

Wanner, R. A., Lewis, L. S., & Gregorio, D. I. (1981). Research productivity in academia: A comparative study of the sciences, social sciences and humanities. Sociology of Education, 238-253.

APPENDIX A

The Escuela Internacional Sampedrana:

School Profile

THE ESCUELA INTERNACIONAL SAMPEDRANA:

SCHOOL PROFILE

The administration, teachers, and educational philosophy at The Escuela Internacional Sampedrana (E.I.S.), Honduras are briefly described below. More information may be obtained from sources such as *The ISS Directory of Overseas Schools* or the internet web site for E.I.S. at: http://seis@netsys.hn.

Administration

E.I.S. was founded in 1953, and is a private bilingual educational institution owned by the parents of the students attending the school. The School Board is elected by the parents and establishes all policies by which the school is governed. To facilitate their function, the School Board appoints a Superintendent who is the administrative and educational leader of the school. An Official Director is recommended by the Superintendent and the School Board, and appointed by the Ministry of Education of Honduras. The Official Director aids and advises the Superintendent in the administrative duties of the school. The High School Principal is responsible for the overall management of the secondary program and is directly responsible to the Superintendent. Likewise, the Primary School Principal is responsible for the overall management of the primary program and is directly responsible to the Superintendent.

All educational levels at E.I.S. (Preschool, Primary, and Secondary) are accredited and recognized by the Southern association of Colleges and Schools in the United States, and by the Honduran Ministry of Education. This accreditation allows students to transfer -- without losing academic credits -- to or from other accredited institutions both within Honduras and the United

States.

Educational Philosophy

In terms of its educational philosophy, E.I.S. is dedicated to developing fully bilingual leaders. These students will build the academic and social skills necessary to succeed in the university of their choice and the self-discipline and integrity to act upon their knowledge in their community, nation, and world.

Teachers

Qualified teachers, both foreign and national, make up the teaching staff of E.I.S. Each teacher holds a degree that qualifies him or her to teach in a specific area. The teaching staff consists of highly qualified, responsible, and professional people who emanate genuine concern for the needs of the students and the school.

SOURCE: Parent Handbook: Primary and Preschool 1997-1998, The Escuela Internacional Sampedrana, San Pedro Sula.

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APPENDIX B

The Escuela Internacional Sampedrana

Professional Development Seminar Series Schedule

1997-1998

PROFESSIONAL DEVELOPMENT SEMINAR
SERIES SCHEDULE

Excluding the seminar described in this document, below are descriptions of seminars scheduled for presentation to preschool, primary, and secondary international teachers at The Escuela Internacional Sampedrana throughout the 1997-98 academic year.

I Recognizing Special Needs Children

This workshop will cover the methods used in identifying the children in your classroom who will need special tutoring or assistance from our Learning Center. This is not designed to instruct in helping these children but rather addresses only the process of identification and referral. It will be especially designed to locate the quiet child who is often overlooked.

II Teaching The Bilingual Child

This workshop is designed to help the teacher and assistant work successfully with a child learning in a language that is different than his or her own. The focus will be on activities to enhance oral language skills.

III Professional Relationships Among Teachers, Administrators, and Parents

This workshop will address the following areas of professional relationships:

Teacher – Teacher

Teacher – Parent

Teacher – Administrator

Successful Parent Conferences

This workshop will address concerns and techniques which apply to each of these areas. They will address the relationships in a two-way process not only from one side. Successful parent conferences will address the issue of bilingual conferencing.

IV Incorporating The Gifted Child Into The Classroom

This workshop will deal with the gifted child in the regular classroom setting. The presenter will provide information and practical techniques that can be used with these children to allow them to be a successful part of a structured classroom setting.

APPENDIX C

Brief Guide For APA Writing Style

4th Edition

SELECTED GENERAL RULES FOR A.P.A. STYLE REFERENCES

- All text should be double spaced
- The author name should be inverted and names should consist of full surname and initials for all authors
- All book and journal titles should be underlined, do not underline journal or magazine article titles
- Capitalize only the first word of an article title and subtitle, as well as all proper nouns
- All journal names should be given in full without abbreviations
- Volume numbers should also be underlined

SELECTED SAMPLE OF A.P.A. REFERENCES

- *Book, with One Author*

Parks, M. S., Jr. (1993). Elements of structure: Providing home care for the mentally disordered (3rd ed.). New York: Macmillan.

- *Book, with Two Editors*

Saline, T. & Gannon, W. (Eds.). (1990). Bilingual counseling: Treating foreign clients. New York: Preager.

- *Book, with Two Authors*

Parks, M. E., & James, B. C. (1983). Elements of treatment and diagnosis (3rd ed.) San Francisco: Mason.

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- *Article or Chapter in Edited Book*

Gardener, G., & Weston, N. (1991). Curriculum development through participatory management. In D. M. West & P. B. Romm (Eds.), Handbook of educational administration (pp. 234-251). New York: Meisel.

- *Journal Article, Two Authors*

Palmer, E. B., & Whitt, K. (1991). Perceptual differences between male and female observers. Memory & Thought, 4, 288-294.

- *Magazine Article*

Travis, E. J. (1987, November). Child rearing practices in the 90s. Psychology Today, 21, 54-59.

- *Proceedings Published Regularly*

Weston, N., Einstein, G., & Hamilton, W. A. (1992). Off campus document delivery using electronic mail and X.25 telecommunications protocols. Proceedings of the Third International Library Networking Symposium, 78, 231-244.

- *ERIC Report*

Lester, M. L. (1982). Developing library research modules for field based adult programs (Report No. R-23-7 772). Evanston, IL: Lewis Center for Information Study, N. Dwight Harris Library. (ERIC Document Reproduction Service No. ED 314 623)

- *Dissertation As Abstracted on CD-ROM*

Stark, T. E. (1994). Teacher education programs: Factors influencing admissions and retention (CD-ROM). Abstract from ProQuest file: Dissertation Abstracts Item: 9876545

Adapted from: Publication Manual of the American Psychological Association, 4th Edition, 1994. (Call Number: REF BF 76.7.P83 1994)